Welcome, Charge, and Follow up from Last Year's Recommendations

2020 FCRSG Review
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Welcome

- Evolution of the Review (not just a name change):
  - As Fermilab experiments become international, it is important to adopt international norms and procedures.
    - "We will follow the successful CERN model of governance"
    - DUNE has an RRB and many other bodies that CERN people would recognize
  - Happy to welcome former CMS L1s (especially from across the Atlantic)
  - Oli will discuss the CERN CRSG process
    - I'd like you to note the similarities and differences to the SCPMT
    - One of the goals of this meeting is to get advice on how to become more international.

Charge: Scope

- Budget and resources “fenced”
  - This review has a focus on the KA22 02 022 “Computing and Detector Operations” B&R
    - Neutrino / Muon experiments
      - Past, current, and future
  - Small experiments / projects
    - Which nonetheless sum to significant resources
- Other experiments / projects usage will be noted where useful
  - CMS, DES, LSST, LQCD, …
  - Fund their own, or their share of common services / resources
  - But do impact resource allocation in the division, thus part of our global planning optimization

Charge: Evaluate Challenges

- DOE has reduced operations funds in order to support projects, especially LBNF/DUNE
  - Have reduced SCD staff by XX during the past year
- Requests for SCD resources are growing nonetheless
- SCD must prepare for the upcoming generation of experiments while also adapting to the changing computing landscape
- SCD was already operating in “lean mode” before the most recent cuts
  - Funding has not supported basic refresh of CPU resources
    - Some new hardware purchased in FY19
      - CPU/disk refresh, hardware for storage research

Charge: Evaluate Requests

- Are the experiments' resource requests believable?
- Are the experiments' resource requests justified?
- Is the SCD response appropriate?
  - Especially if requests > resources?
- Is there room for more optimization?
- Can the committee provide specific feedback to experiments / projects?

Recommendations from 2019 SCPMT

1. Improve the SCPMT template by reexamining the technical metrics. Make the responses available in advance to provide more time for discussions with experiments and of SCD's action plan. Have larger projects outline their computing models and methods used to estimate the requested resources.
   a. We have used this recommendation as a guide while reformulating the SCPMT for this year's FCRSG. We welcome will welcome the committee's feedback on how we can continue to refine the process next year.

Recommendations from 2019 SCPMT

2. Improve efficiency of managing resources allocated to the experiments by developing well-defined policies for CPU performance and storage. Enforce policies via automated quotas and allocations. Develop tools to incentivize users who follow the policies.
    a. Our major shift has been from trying to fix experiment's problematic jobs to forcing the experiments to deal with problems themselves. We are implement a new FIFE user activity mitigation policy, a.k.a, the "naughty-user policy", which states that jobs will be shut down if they interfere with shared resources.

Recommendations from 2019 SCPMT

3. Facilitate onboarding of the experiments and reduce the long-term direct support.
    a. SCD has both reorganized and slightly retracted since last year. In the process of doing so, we have reduced direct support for experiments and focused on giving experiments tools to support themselves.
        - One example of enhancements to the end-user experience has been work on the Production Operations Management Service (POMS) to make job management easier for experiments to handle themselves.

Recommendations from 2019 SCPMT

4. Storage resources and usage need a sustainable philosophy. An example would be the NAS, which, as implemented, has led to dependence on expensive and old technology. The absence of high performance solutions has forced the experiments to use expensive storage systems in an inefficient way.
    a. Gentle approaches to moving experiments away from NAS have been unsuccessful. Multiple research efforts are underway to provide better access to storage resources.

Recommendations from 2019 SCPMT

5. Continue efforts to develop and implement common tools across frontiers.
    a. The development of common tools is an ongoing priority in the division.
        i. We continue to make common tools a priority.
        ii. Our participation in the HEP Software Foundation (HSF) is on of our main sources of coordination.
        iii. Two of our best success stories here is the adoption and further development of Rucio for Energy, Intensity and Cosmic Frontiers and GlideinWMS, which connects with the Condor team and the Open Science Grid.
        iv. Other efforts include Spack for packaging and deployment and a shared Frameworks project.
            1. The lack of incentives for experiments to participate are one primary obstacle to further success.
            2. The stovepiped nature of funding for projects forms another obstacle.

Recommendations from 2019 SCPMT

6. In light of constrained budgets, no flexibility remains for identifying and updating current services and infrastructure. To be a sustainable enterprise, SCD should identify 5% of its budget that can be used for R&D activities toward future hardware/software advances.
   a. Software research is an ongoing effort.
      i. Expanded funding for the CCE project is helping in that regard. (See later.)
   b. We did manage to do some CPU and disk research in FY19.
      i. Part of the FY19 hardware purchases went into NVMe hardware dedicated for storage research.